PROJECT MEMORANDUM

DATE: November 16, 1992

TO: Joe Depner, Project Manager

FROM: Nels Cone, Chemist

SUBJECT: DATA VALIDATION OF ANALYTICAL RESULTS FROM PIER 91 RCRA FACILITY INVESTIGATION, PROJECT 624878, DATA SET #1

On September 17, 1992, soil samples were collected for semivolatile (USEPA Method 8270) and Total Petroleum Hydrocarbon (USEPA Methods 418.1 and 8015) analyses. On September 18, 1992, the samples were submitted to Sound Analytical Services (SAS) of Tacoma, Washington to perform the requested analyses on the following samples:

CP-HA-12-5-5.5, CP-HA-12-6-6.5, CP-HA-11-1.5-2, CP-HA-11-6-6.5

Properly completed chain-of-custody (COC) forms were included, along with documented signatures from field to laboratory receipt. All samples were shown as having been properly iced and received in good condition. All holding times were satisfied per regulatory protocol (*National Functional Guidelines for Organic Data Review*, USEPA, 1990).

Initial QC documentation consisted of method blank results, surrogate recoveries, and supporting TPH 8015 chromatograms. Required data consistency was demonstrated in all samples tested. Analytical results from this data set indicate elevated levels of analytes in all samples tested. Accordingly, this affected the manner in which the data were reported. Specifically, the elevated product levels in the semivolatile analyses required dilution of the samples to ensure that target analytes were within the instrument calibration range. As a result, the reported detection limits are shown to be elevated. Also, surrogate recoveries were outside normal QC limits due to dilution for required analyses. Regardless, the data quality objectives as defined in Table F-2 of the QAPP are not compromised.

Subsequent QC documentation consisting of raw data, instrument calibration/tuning data, semivolatile analysis chromatograms/mass spectroscopy data, and batch QC data satisfy the quality assurance objectives specified in Part F of the Pier 91 RFI Work Plan. Proper data qualifier flags accompanied analytical results as needed, and their use was consistent with standard USEPA guidelines set forth in regulations mentioned above. This data set can be considered valid for its intended use.

NC/rlk/b41:1904b.mem

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Burlington Environmental Engineering

Date: October 5, 1992

Report On: Analysis of Soil

Lab No.: 27215

IDENTIFICATION:
Sample Received on 09-18-92
Project: 624878 Pier 91

ANALYSIS:

Lab No. 27215-1

Client ID: CP-HA-12-5-5.5

Semivolatile Organics Per EPA SW-846 Method 8270
Date Extracted: 9-23-92
Date Analyzed: 9-29-92

CAS No.	Compounds	Concentration ug/kg	PQL
108-95-2	Phenol	ND	14,000
111-44-4	bis(2-Chloroethyl) ether	ND	14,000
95-57-8	2-Chlorophenol	ND	14,000
541-73-1	1,3-Dichlorobenzene	ND	14,000
106-46-7	1,4-Dichlorobenzene	ND	14,000
100-51-6	Benzyl Alcohol	ND	27,000
95-50-1	1,2-Dichlorobenzene	ND	14,000
95-48-7	2-Methylphenol	ND	14,000
39638-32-9	bis(2-Chloroisopropyl)ether	ND	14,000
106-44-5	4-Methylphenol	ND	14,000
621-64-7	N-Nitroso-Di-N-propylamine	ND	14,000
67-72-1	Hexachloroethane	ND	14,000
98-95-3	Nitrobenzene	ND	14,000
78-59-1	Isophorone	ND	14,000
88-75-5	2-Nitrophenol	ND	14,000
105-67-9	2,4-Dimethylphenol	ND	14,000
65-85-0	Benzoic Acid	ND	69,000
111-91-1	bis(2-Chloroethoxy)methane	ND	14,000
120-83-2	2,4-Dichlorophenol	ND	14,000
120-82-1	1,2,4-Trichlorobenzene	ND	14,000
91-20-3	Naphthalene	21,000	14,000
106-47-8	4-Chloroaniline	ND	27,000
87-68-3	Hexachlorobutadiene	ND	14,000
59-50-7	4-Chloro-3-methylphenol	ND	27,000

ND - Not Detected

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-1 Client ID: CP-HA-12-5-5.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	70,000	14,000
77-47-4	Hexachlorocyclopentadiene	ND	14,000
88-06-2	2,4,6-Trichlorophenol	ND	14,000
95-95-4	2,4,5-Trichlorophenol	ND	14,000
91-58-7	2-Chloronaphthalene	ND	14,000
88-74-4	2-Nitroaniline	ND	69,000
131-11-3	Dimethyl phthalate	ND	14,000
208-96-8	Acenaphthylene	ND	14,000
606-20-2	2,6-Dinitrotoluene	ND	14,000
99-09-2	3-Nitroaniline	ND	69,000
83-32-9	Acenaphthene	*(3,000)	14,000
51-28-5	2,4-Dinitrophenol	ND	69,000
100-02-7	4-Nitrophenol	ND	69,000
132-64-9	Dibenzofuran	ND	14,000
121-14-2	2,4-Dinitrotoluene	ND	14,000
84-66-2	Diethylphthalate	ND	14,000
7005-72-3	4-Chlorophenyl phenyl ether	ND	14,000
86-73-7	Fluorene	*(7,600)	14,000
100-01-6	4-Nitroaniline	ND	69,000
534-52-1	4,6-Dinitro-2-methylphenol	ND	69,000
86-30-6	N-Nitrosodiphenylamine	ND	14,000
101-55-3	4-Bromophenyl phenyl ether	ND	14,000
118-74-1	Hexachlorobenzene	ND	14,000
87-86-5	Pentachlorophenol	ND	69,000
85-01-8	Phenanthrene	22,000	14,000
120-12-7	Anthracene	ND	14,000
84-74-2	Di-n-butylphthalate	ND	14,000

ND - Not Detected
* Compound was detected but below PQL. Value shown is an estimated quantity.

Continued . . . . .

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-1 Client ID: CP-HA-12-5-5.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	14,000
129-00-0	Pyrene	*(4,100)	14,000
85-68-7	Butyl benzyl phthalate	ND	14,000
91-94-1	3,3'-Dichlorobenzidine	ND	27,000
56-55-3	Benzo(a)anthracene	ND	14,000
218-01-9	Chrysene	ND	14,000
117-81-7	bis(2-ethylhexyl)phthalate	ND	14,000
117-84-0	Di-n-octyl phthalate	ND	14,000
205-99-2	Benzo(b)fluoranthene	ND	14,000
207-08-9	Benzo(k)fluoranthene	ND	14,000
50-32-8	Benzo(a)pyrene	ND	14,000
193-39-5	Indeno(1,2,3-cd)pyrene	ND	14,000
53-70-3	Dibenz(a,h)anthracene	ND	14,000
191-24-2	Benzo(g,h,i)perylene	ND	14,000

ND - Not Detected
PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.
*Compound was detected but below PQL. Value shown is an estimated quantity.
Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits Water	Soil
Nitrobenzene - d_5	Diluted	35 - 114	23 - 120
2-Fluorobiphenyl		43 - 116	30 - 115
p-Terphenyl-d_{14}	Out	33 - 141	18 - 137
Phenol-d_6		10 - 94	24 - 113
2-Fluorophenol		21 - 100	25 - 121
2,4,6-Tribromophenol		10 - 123	19 - 122

Continued . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-1 Client ID: CP-HA-12-5-5.5

TPH Per EPA Method 418.1
Date Extracted: 9-23-92
Date Analyzed: 9-24-92

Total Petroleum Hydrocarbons, mg/kg	49,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-29-92
Date Analyzed: 9-30-92

Total Petroleum Fuel Hydrocarbons, mg/kg	48,000	E

TPH as Aged Gas, Diesel, and Heavy Oil

SURROGATE RECOVERY, %	
1-chlorooctane	X8
o-terphenyl	X8

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-2 Client ID: CP-HA-12-6-6.5

Semivolatile Organics Per EPA SW-846 Method 8270
Date Extracted: 9-23-92
Date Analyzed: 9-29-92

CAS No.	Compounds	Concentration ug/kg	PQL
108-95-2	Phenol	ND	15,000
111-44-4	bis(2-Chloroethyl) ether	ND	15,000
95-57-8	2-Chlorophenol	ND	15,000
541-73-1	1,3-Dichlorobenzene	ND	15,000
106-46-7	1,4-Dichlorobenzene	ND	15,000
100-51-6	Benzyl Alcohol	ND	29,000
95-50-1	1,2-Dichlorobenzene	ND	15,000
95-48-7	2-Methylphenol	ND	15,000
39638-32-9	bis(2-Chloroisopropyl)ether	ND	15,000
106-44-5	4-Methylphenol	ND	15,000
621-64-7	N-Nitroso-Di-N-propylamine	ND	15,000
67-72-1	Hexachloroethane	ND	15,000
98-95-3	Nitrobenzene	ND	15,000
78-59-1	Isophorone	ND	15,000
88-75-5	2-Nitrophenol	ND	15,000
105-67-9	2,4-Dimethylphenol	ND	15,000
65-85-0	Benzoic Acid	ND	73,000
111-91-1	bis(2-Chloroethoxy)methane	ND	15,000
120-83-2	2,4-Dichlorophenol	ND	15,000
120-82-1	1,2,4-Trichlorobenzene	ND	15,000
91-20-3	Naphthalene	17,000	15,000
106-47-8	4-Chloroaniline	ND	29,000
87-68-3	Hexachlorobutadiene	ND	15,000
59-50-7	4-Chloro-3-methylphenol	ND	29,000

ND - Not Detected

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-2 Client ID: CP-HA-12-6-6.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	60,000	15,000
77-47-4	Hexachlorocyclopentadiene	ND	15,000
88-06-2	2,4,6-Trichlorophenol	ND	15,000
95-95-4	2,4,5-Trichlorophenol	ND	15,000
91-58-7	2-Chloronaphthalene	ND	15,000
88-74-4	2-Nitroaniline	ND	73,000
131-11-3	Dimethyl phthalate	ND	15,000
208-96-8	Acenaphthylene	ND	15,000
606-20-2	2,6-Dinitrotoluene	ND	15,000
99-09-2	3-Nitroaniline	ND	73,000
83-32-9	Acenaphthene	*(3,300)	15,000
51-28-5	2,4-Dinitrophenol	ND	73,000
100-02-7	4-Nitrophenol	ND	73,000
132-64-9	Dibenzofuran	ND	15,000
121-14-2	2,4-Dinitrotoluene	ND	15,000
84-66-2	Diethylphthalate	ND	15,000
7005-72-3	4-Chlorophenyl phenyl ether	ND	15,000
86-73-7	Fluorene	*(5,600)	15,000
100-01-6	4-Nitroaniline	ND	73,000
534-52-1	4,6-Dinitro-2-methylphenol	ND	73,000
86-30-6	N-Nitrosodiphenylamine	ND	15,000
101-55-3	4-Bromophenyl phenyl ether	ND	15,000
118-74-1	Hexachlorobenzene	ND	15,000
87-86-5	Pentachlorophenol	ND	73,000
85-01-8	Phenanthrene	19,000	15,000
120-12-7	Anthracene	ND	15,000
84-74-2	Di-n-butylphthalate	ND	15,000

ND - Not Detected
* Compound was detected but below PQL. Value shown is an estimated quantity.

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-2 Client ID: CP-HA-12-6-6.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	15,000
129-00-0	Pyrene	ND	15,000
85-68-7	Butyl benzyl phthalate	ND	15,000
91-94-1	3,3'-Dichlorobenzidine	ND	29,000
56-55-3	Benzo(a)anthracene	ND	15,000
218-01-9	Chrysene	ND	15,000
117-81-7	bis(2-ethylhexyl)phthalate	ND	15,000
117-84-0	Di-n-octyl phthalate	ND	15,000
205-99-2	Benzo(b)fluoranthene	ND	15,000
207-08-9	Benzo(k)fluoranthene	ND	15,000
50-32-8	Benzo(a)pyrene	ND	15,000
193-39-5	Indeno(1,2,3-cd)pyrene	ND	15,000
53-70-3	Dibenz(a,h)anthracene	ND	15,000
191-24-2	Benzo(g,h,i)perylene	ND	15,000

ND - Not Detected
PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits Water	Soil
Nitrobenzene - d_5	Diluted	35 - 114	23 - 120
2-Fluorobiphenyl		43 - 116	30 - 115
p-Terphenyl-d_{14}	Out	33 - 141	18 - 137
Phenol-d_6		10 - 94	24 - 113
2-Fluorophenol		21 - 100	25 - 121
2,4,6-Tribromophenol		10 - 123	19 - 122

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-2 Client ID: CP-HA-12-6-6.5

TPH Per EPA Method 418.1
Date Extracted: 9-23-92
Date Analyzed: 9-24-92

Total Petroleum Hydrocarbons, mg/kg	40,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-29-92
Date Analyzed: 9-30-92

Total Petroleum Fuel Hydrocarbons, mg/kg	37,000

TPH as Aged Gas, Diesel, and Heavy Oil

SURROGATE RECOVERY, %	
1-chlorooctane	X8
o-terphenyl	X8

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-3 Client ID: CP-HA-11-1.5-2

Semivolatile Organics Per EPA SW-846 Method 8270
Date Extracted: 9-23-92
Date Analyzed: 9-29-92

CAS No.	Compounds	Concentration ug/kg	PQL
108-95-2	Phenol	ND	72,000
111-44-4	bis(2-Chloroethyl) ether	ND	72,000
95-57-8	2-Chlorophenol	ND	72,000
541-73-1	1,3-Dichlorobenzene	ND	72,000
106-46-7	1,4-Dichlorobenzene	ND	72,000
100-51-6	Benzyl Alcohol	ND	140,000
95-50-1	1,2-Dichlorobenzene	ND	72,000
95-48-7	2-Methylphenol	ND	72,000
39638-32-9	bis(2-Chloroisopropyl)ether	ND	72,000
106-44-5	4-Methylphenol	ND	72,000
621-64-7	N-Nitroso-Di-N-propylamine	ND	72,000
67-72-1	Hexachloroethane	ND	72,000
98-95-3	Nitrobenzene	ND	72,000
78-59-1	Isophorone	ND	72,000
88-75-5	2-Nitrophenol	ND	72,000
105-67-9	2,4-Dimethylphenol	ND	72,000
65-85-0	Benzoic Acid	ND	360,000
111-91-1	bis(2-Chloroethoxy)methane	ND	72,000
120-83-2	2,4-Dichlorophenol	ND	72,000
120-82-1	1,2,4-Trichlorobenzene	ND	72,000
91-20-3	Naphthalene	*(18,000)	72,000
106-47-8	4-Chloroaniline	ND	140,000
87-68-3	Hexachlorobutadiene	ND	72,000
59-50-7	4-Chloro-3-methylphenol	ND	140,000

ND - Not Detected
* Compound was detected but below PQL. Value shown is an estimated quantity.

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-3 Client ID: CP-HA-11-1.5-2

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	85,000	72,000
77-47-4	Hexachlorocyclopentadiene	ND	72,000
88-06-2	2,4,6-Trichlorophenol	ND	72,000
95-95-4	2,4,5-Trichlorophenol	ND	72,000
91-58-7	2-Chloronaphthalene	ND	72,000
88-74-4	2-Nitroaniline	ND	360,000
131-11-3	Dimethyl phthalate	ND	72,000
208-96-8	Acenaphthylene	ND	72,000
606-20-2	2,6-Dinitrotoluene	ND	72,000
99-09-2	3-Nitroaniline	ND	360,000
83-32-9	Acenaphthene	ND	72,000
51-28-5	2,4-Dinitrophenol	ND	360,000
100-02-7	4-Nitrophenol	ND	360,000
132-64-9	Dibenzofuran	ND	72,000
121-14-2	2,4-Dinitrotoluene	ND	72,000
84-66-2	Diethylphthalate	ND	72,000
7005-72-3	4-Chlorophenyl phenyl ether	ND	72,000
86-73-7	Fluorene	ND	72,000
100-01-6	4-Nitroaniline	ND	360,000
534-52-1	4,6-Dinitro-2-methylphenol	ND	360,000
86-30-6	N-Nitrosodiphenylamine	ND	72,000
101-55-3	4-Bromophenyl phenyl ether	ND	72,000
118-74-1	Hexachlorobenzene	ND	72,000
87-86-5	Pentachlorophenol	ND	360,000
85-01-8	Phenanthrene	*(33,000)	72,000
120-12-7	Anthracene	ND	72,000
84-74-2	Di-n-butylphthalate	ND	72,000

ND - Not Detected
* Compound was detected but below PQL. Value shown is an estimated quantity.

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-3 Client ID: CP-HA-11-1.5-2

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	72,000
129-00-0	Pyrene	*(21,000)	72,000
85-68-7	Butyl benzyl phthalate	ND	72,000
91-94-1	3,3'-Dichlorobenzidine	ND	140,000
56-55-3	Benzo(a)anthracene	ND	72,000
218-01-9	Chrysene	ND	72,000
117-81-7	bis(2-ethylhexyl)phthalate	ND	72,000
117-84-0	Di-n-octyl phthalate	ND	72,000
205-99-2	Benzo(b)fluoranthene	ND	72,000
207-08-9	Benzo(k)fluoranthene	ND	72,000
50-32-8	Benzo(a)pyrene	ND	72,000
193-39-5	Indeno(1,2,3-cd)pyrene	ND	72,000
53-70-3	Dibenz(a,h)anthracene	ND	72,000
191-24-2	Benzo(g,h,i)perylene	ND	72,000

ND - Not Detected
PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.
*Compound was detected but below PQL. Value shown is an estimated quantity.
Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits Water	Soil
Nitrobenzene - d_5	Diluted	35 - 114	23 - 120
2-Fluorobiphenyl		43 - 116	30 - 115
p-Terphenyl-d_{14}	Out	33 - 141	18 - 137
Phenol-d_6		10 - 94	24 - 113
2-Fluorophenol		21 - 100	25 - 121
2,4,6-Tribromophenol		10 - 123	19 - 122

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-3 Client ID: CP-HA-11-1.5-2

TPH Per EPA Method 418.1
Date Extracted: 9-23-92
Date Analyzed: 9-24-92

Total Petroleum Hydrocarbons, mg/kg	120,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-29-92
Date Analyzed: 9-30-92

Total Petroleum Fuel Hydrocarbons, mg/kg	97,000	E

TPH as Aged Gas, Diesel, and Heavy Oil

SURROGATE RECOVERY, %	
1-chlorooctane	X8
o-terphenyl	X8

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-4 Client ID: CP-HA-11-6-6.5

Semivolatile Organics Per EPA SW-846 Method 8270
Date Extracted: 9-23-92
Date Analyzed: 9-29-92

CAS No.	Compounds	Concentration ug/kg	PQL
108-95-2	Phenol	ND	7,200
111-44-4	bis(2-Chloroethyl) ether	ND	7,200
95-57-8	2-Chlorophenol	ND	7,200
541-73-1	1,3-Dichlorobenzene	ND	7,200
106-46-7	1,4-Dichlorobenzene	ND	7,200
100-51-6	Benzyl Alcohol	ND	14,000
95-50-1	1,2-Dichlorobenzene	ND	7,200
95-48-7	2-Methylphenol	ND	7,200
39638-32-9	bis(2-Chloroisopropyl)ether	ND	7,200
106-44-5	4-Methylphenol	ND	7,200
621-64-7	N-Nitroso-Di-N-propylamine	ND	7,200
67-72-1	Hexachloroethane	ND	7,200
98-95-3	Nitrobenzene	ND	7,200
78-59-1	Isophorone	ND	7,200
88-75-5	2-Nitrophenol	ND	7,200
105-67-9	2,4-Dimethylphenol	ND	7,200
65-85-0	Benzoic Acid	ND	36,000
111-91-1	bis(2-Chloroethoxy)methane	ND	7,200
120-83-2	2,4-Dichlorophenol	ND	7,200
120-82-1	1,2,4-Trichlorobenzene	ND	7,200
91-20-3	Naphthalene	*(3,300)	7,200
106-47-8	4-Chloroaniline	ND	14,000
87-68-3	Hexachlorobutadiene	ND	7,200
59-50-7	4-Chloro-3-methylphenol	ND	14,000

ND - Not Detected
* Compound was detected but below PQL. Value shown is an estimated quantity.

Continued . . . . .

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-4 Client ID: CP-HA-11-6-6.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	17,000	7,200
77-47-4	Hexachlorocyclopentadiene	ND	7,200
88-06-2	2,4,6-Trichlorophenol	ND	7,200
95-95-4	2,4,5-Trichlorophenol	ND	7,200
91-58-7	2-Chloronaphthalene	ND	7,200
88-74-4	2-Nitroaniline	ND	36,000
131-11-3	Dimethyl phthalate	ND	7,200
208-96-8	Acenaphthylene	ND	7,200
606-20-2	2,6-Dinitrotoluene	ND	7,200
99-09-2	3-Nitroaniline	ND	36,000
83-32-9	Acenaphthene	*(1,400)	7,200
51-28-5	2,4-Dinitrophenol	ND	36,000
100-02-7	4-Nitrophenol	ND	36,000
132-64-9	Dibenzofuran	ND	7,200
121-14-2	2,4-Dinitrotoluene	ND	7,200
84-66-2	Diethylphthalate	ND	7,200
7005-72-3	4-Chlorophenyl phenyl ether	ND	7,200
86-73-7	Fluorene	*(2,000)	7,200
100-01-6	4-Nitroaniline	ND	36,000
534-52-1	4,6-Dinitro-2-methylphenol	ND	36,000
86-30-6	N-Nitrosodiphenylamine	ND	7,200
101-55-3	4-Bromophenyl phenyl ether	ND	7,200
118-74-1	Hexachlorobenzene	ND	7,200
87-86-5	Pentachlorophenol	ND	36,000
85-01-8	Phenanthrene	*(5,200)	7,200
120-12-7	Anthracene	ND	7,200
84-74-2	Di-n-butylphthalate	ND	7,200

ND - Not Detected
* Compound was detected but below PQL. Value shown is an estimated quantity.

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878

Lab No. 27215
October 5, 1992

Lab No. 27215-4 Client ID: CP-HA-11-6-6.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	7,200
129-00-0	Pyrene	*(2,200)	7,200
85-68-7	Butyl benzyl phthalate	ND	7,200
91-94-1	3,3'-Dichlorobenzidine	ND	14,000
56-55-3	Benzo(a)anthracene	ND	7,200
218-01-9	Chrysene	ND	7,200
117-81-7	bis(2-ethylhexyl)phthalate	ND	7,200
117-84-0	Di-n-octyl phthalate	ND	7,200
205-99-2	Benzo(b)fluoranthene	ND	7,200
207-08-9	Benzo(k)fluoranthene	ND	7,200
50-32-8	Benzo(a)pyrene	ND	7,200
193-39-5	Indeno(1,2,3-cd)pyrene	ND	7,200
53-70-3	Dibenz(a,h)anthracene	ND	7,200
191-24-2	Benzo(g,h,i)perylene	ND	7,200

ND - Not Detected
PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.
*Compound was detected but below PQL. Value shown is an estimated quantity.
Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits Water	Soil
Nitrobenzene - d_5	Diluted	35 - 114	23 - 120
2-Fluorobiphenyl		43 - 116	30 - 115
p-Terphenyl-d_{14}	Out	33 - 141	18 - 137
Phenol-d_6		10 - 94	24 - 113
2-Fluorophenol		21 - 100	25 - 121
2,4,6-Tribromophenol		10 - 123	19 - 122

Continued . . . . .

SOUND ANALYTICAL SERVICES, INC.

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Lab No. 27215
October 5, 1992

Lab No. 27215-4 Client ID: CP-HA-11-6-6.5

TPH Per EPA Method 418.1
Date Extracted: 9-23-92
Date Analyzed: 9-24-92

Total Petroleum Hydrocarbons, mg/kg	11,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-29-92
Date Analyzed: 9-30-92

Total Petroleum Fuel Hydrocarbons, mg/kg	11,000
TPH as	Diesel and Heavy Oil

SURROGATE RECOVERY, %	
1-chlorooctane	X8
o-terphenyl	X8

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN